FULL-AUTO
MARLIN

MODEL 9 & 45

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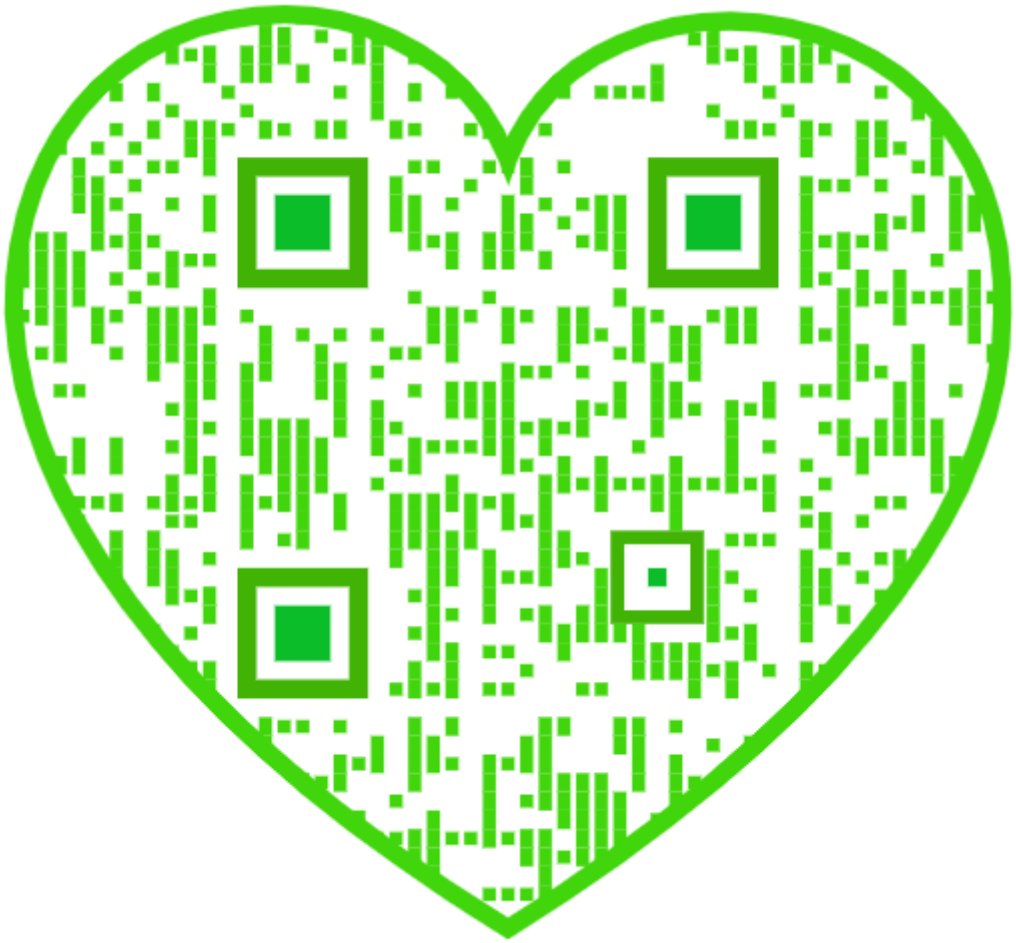


TABLE OF CONTENTS

PREFACE 1
BEFORE YOU BEGIN 3
DISASSEMBLY 4
DISASSEMBLING THE TRIGGER ASSEMBLY 7
FABRICATING THE TRIGGER CONNECTOR ... 13
REASSEMBLY 19
TESTING 26

CAUTION!

The legal construction and possession of a fully automatic weapon is controlled by the Bureau of Alcohol, Tobacco, and Firearms division of the U.S. Treasury Department.

All conversions must be done by a licensed Class II manufacturer. In addition, an authorized application must be secured from the B.A.T.F. governmental agency before any construction begins. (State and local laws may prohibit ownership of this type of weapon.)

Information provided in this book is for academic purposes only. The publisher, Butokukai, assumes no responsibility or liability for illegal or improper firearm modifications, which may result in any gun damage or bodily harm.

PREFACE

The Marlin Model 9 Camp Carbine is one of the best little auto-loaders on the market today. It comes in two chambered sizes: 9x19 parabellum (also known as 9mm Luger), and standard 45 auto rounds. The mechanics of both styles are identical, therefore, the steps for full-auto conversion are the same.

This manual describes, step-by-step, how to convert the Model 9 into a full-time, full-auto submachine gun. The large component parts and the simple workings of the triggering mechanism make the Model 9 a very easy full-auto conversion.

Many of those who choose the Marlin Model 9 for conversion base their decision on cost-effectiveness. One may readily purchase the rifle for under $300.00 at any arms dealer. The 9mm is inexpensive to shoot at full-auto speeds, which may climb to a 1200 rpm practical feed. Most importantly, this manual describes how the Model 9 may be converted to full-auto for as little as 50 cents!

Read through this publication completely before you begin. It is important to get the "big picture" for things to go smoothly.

MARLIN MOD. 9

BEFORE YOU BEGIN

STEP #1 Get the proper license and approval from the U.S. Government B.A.T.F.

STEP #2 Read through the book several times so you are familiar with each step of the conversion.

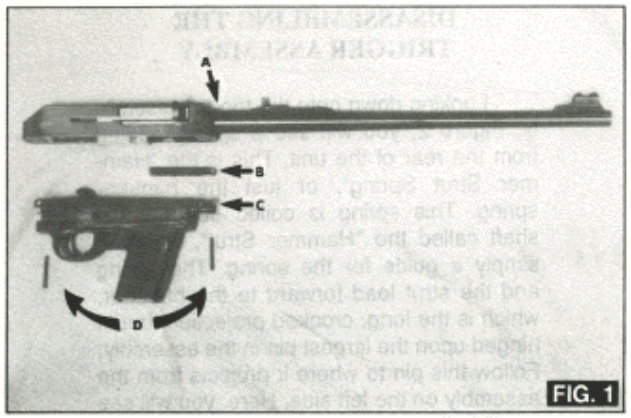
STEP #3 Acquire the tools and equipment needed.

STEP #4 Note: This step is very important! If you are not completely familiar with the design and function of the trigger disconnector assembly, you should study it very carefully. Make diagrams, take still pictures or even video tape the location of all of the various parts. Whatever it takes, you must be able to reassemble the complete trigger mechanism.

DISASSEMBLY

The first portion of the disassembly procedure is illustrated in the owner's manual. With the safety ON, flip the gun over and remove the two take-down screws. With this, the stock will fall away from the main body of the gun, known as the "barreled action".

The barreled action, Figure 1, resembles a pistol with a VERY long barrel. Holding this together are two large take-down pins, located at the front and rear of the receiver. Use a nail or punch to drive these pins out through the side of the receiver that has the serial number. Nothing will pop out at you, for there are no springs depending on these two pins. The action will simply fall apart into the "trigger assembly", the "bolt stop" (which quite literally falls out), and the "receiver" with the barrel still attached. Leave the bolt, and all the other parts that don't drop out of the receiver, in the receiver for later modification.



DISASSEMBLED BARRELED ACTION
A) RECEIVER WITH BARREL
B) BOLT STOP
C) TRIGGER ASSEMBLY
D) TAKE-DOWN PINS

DISASSEMBLING THE TRIGGER ASSEMBLY

Looking down onto the trigger assembly, Figure 2, you will see a spring leading from the rear of the unit. This is the "Hammer Strut Spring", or just the hammer spring. This spring is coiled about a flat shaft called the "Hammer Strut", which is simply a guide for the spring. The spring and the strut lead forward to the hammer, which is the long, crooked projection that is hinged upon the largest pin in the assembly. Follow this pin to where it projects from the assembly on the left side. Here, you will see an "E"-clip, which holds the whole mess together — DON'T TOUCH IT YET!!! A few things must be done first.

In order to prevent the hammer strut and hammer spring from lodging in your forehead (very unsightly), you must un-cock the hammer. To do this, you must locate the "Magazine Disconnector", which is the small, rounded projection located within the magazine box. This projection must be depressed with either your finger, or by inserting an EMPTY magazine into the box. You must also locate the "Trigger Block", which is a small, flat structure located at the base of the hammer. It is hinged on the same large pin as the hammer, and it must also be depressed for un-cocking.

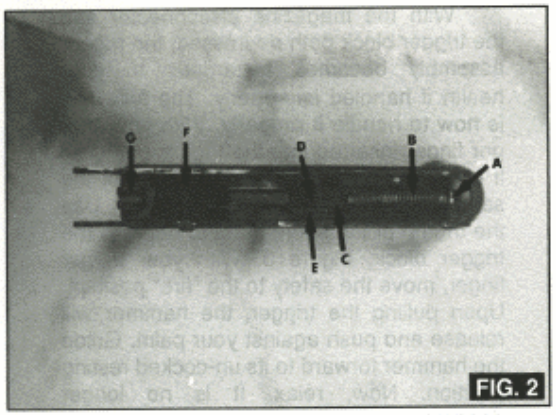


FIG. 2

COMPLETE TRIGGER ASSEMBLY

A) HAMMER STRUT BRIDGE
B) HAMMER STRUT SPRING
C) HAMMER STRUT
D) HAMMER
E) TRIGGER BLOCK
F) MAGAZINE BOX
(CONTAINING MAGAZINE DISCONNECTOR)
G) FEED RAMP

With the magazine disconnector and the trigger block both depressed, the trigger assembly becomes hazardous to your health if handled improperly. The following is how to handle it properly. With your trigger finger inserted into the trigger guard as if in a firing position, place the palm of the same hand FIRMLY atop the hammer. Use the thumb of the same hand to depress the trigger block, Figure 3. With your trigger finger, move the safety to the "fire" position. Upon pulling the trigger, the hammer will release and push against your palm. Guide the hammer forward to its un-cocked resting position. Now, relax. It is no longer dangerous.

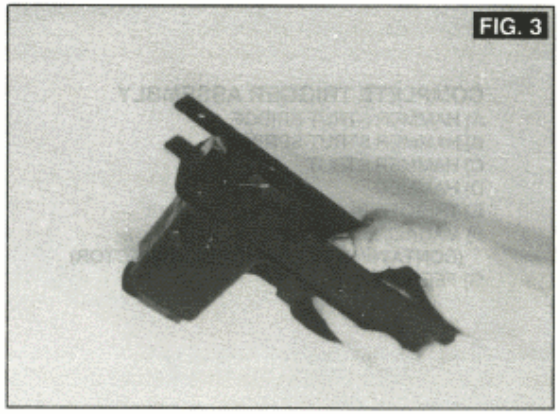


FIG. 3

FIG. 4

TRIGGER ASSEMBLY
A) MANUAL HOLD-OPEN LEVER
B) E-CLIP

With the hammer un-cocked, you may remove the magazine from the box and focus on disassembly of the unit. First off, the "Manual Hold Open Lever" for the bolt can be removed. It is the lever on the left of the unit located right beside the magazine release. Simply push this up, and it will fall free. Now, you can remove the "E"-clip from the large pin, Figure 4. Be careful to not let the side plate come free at this time, because the hammer spring will shoot out of the rear of the unit. As I mentioned before, departing springs are potentially painful.

You will see that the hammer spring butts up against a rectangular piece at the rear of the assembly. Holding the sides of the assembly together with one hand, place the other hand over the rear of the unit. Carefully spread the sides of the unit apart towards the rear only. Be careful not to allow the front of the assembly to spread so that you may avoid a bunch of tiny little parts from falling into your lap. Upon spreading the rear of the assembly, the rectangle (called the "Hammer Strut Bridge") will pop out, with the hammer spring and the hammer strut, into the palm of your hand, Figure 5.

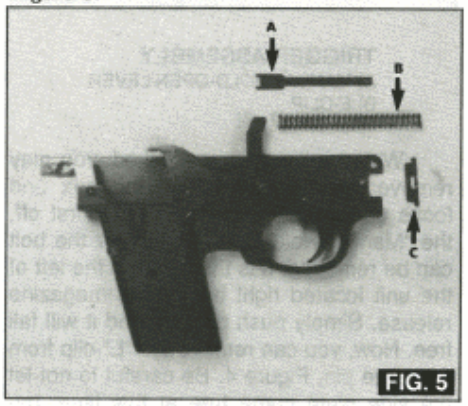


FIG. 5

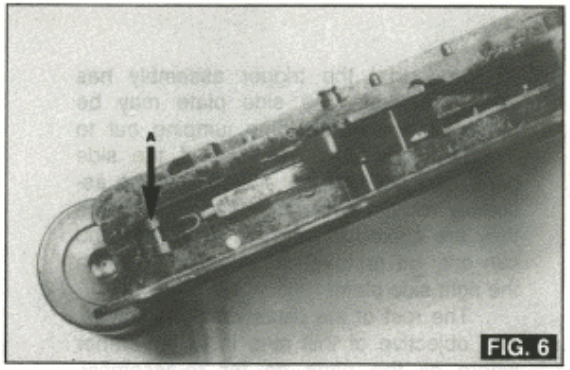
"DEFUSED" TRIGGER ASSEMBLY
A) HAMMER STRUT
B) HAMMER STRUT SPRING
C) HAMMER STRUT BRIDGE

Now that the trigger assembly has been "defused", the side plate may be removed without anything jumping out to surprise you. Upon removal of the side plate, you will find that the pins of the assembly remain stationary. This is because they are affixed to the right side plate and can only be removed as a single unit with the right side plate.

The rest of the disassembly is simple. The objective of this step is to remember where all the parts go for re-assembly. Don't worry, there are only about nine or so parts that come out with this final step. All that remains is to slowly pull the right side plate (with pins) from the rest of the assembly. With this, the aforementioned variety of parts will fall out. Just remember how they went in, because there is no trick to putting them back, they just go in the way they came out.

At this point, the little spring at the rear of the unit, called the "Trigger Return Spring", may get in your way. This can be removed by pushing the pin (that holds it in) through. The pin is located just above and behind the trigger, Figure 6.

Of those parts that came out with the last step, locate the trigger. The part that we



REAR TRIGGER ASSEMBLY
A) TRIGGER RETURN SPRING

are after is the small pivoted part connected to the rear of the trigger via a pin. This part is called the "Trigger Disconnector" and it fits comfortably into the back of the trigger. Drive the pin out of the trigger and the disconnector, with its spring, will come out easily.

Concentrate on the name of that part for a minute — "Trigger Disconnector". Obviously, it disconnects the trigger from the rest of the assembly after one round has been fired. We can't let this happen if we want full-auto. The trigger mechanism must be CONNECTED at all times. The next section describes how to fabricate a new part that we will call a "Trigger Connector", which will accomplish this task.

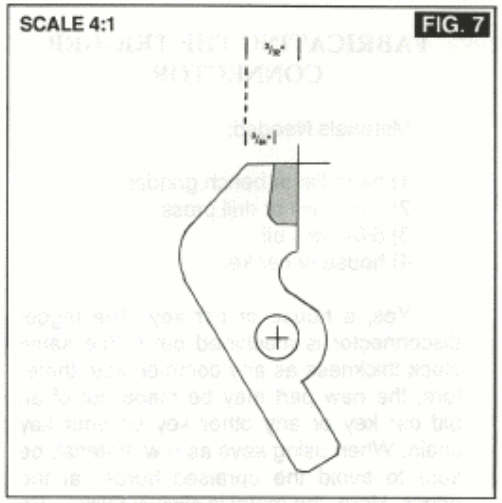
FABRICATING THE TRIGGER CONNECTOR

Materials Needed:

1) hand file or bench grinder
2) small drill or drill press
3) 5/64" drill bit
4) house or car key

Yes, a house or car key. The trigger disconnector is machined out of the same stock thickness as any common key, therefore, the new part may be made out of an old car key or any other key on your key chain. When using keys as raw material, be sure to avoid the upraised border at the edges. Here, the metal is slightly thicker. Be certain to use the flat metal towards the center of the key. A key made of brass may be used, and will be easier to fabricate the new connector. Using a key made of metal will be harder to work with, but will produce a more durable part.

If you don't have access to a drill press, drill a 5/64" hole through another piece of metal the thickness of a quarter, and use it as a guide by clamping it onto your key. This will keep your bit from sliding around, producing an uneven hole in your new part.

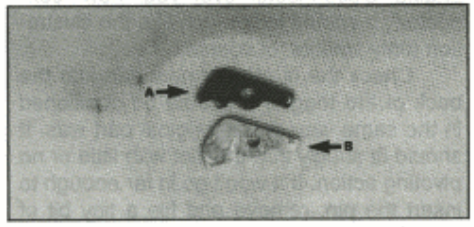


TRIGGER DISCONNECTOR TO TRIGGER CONNECTOR COMPARISON

The illustration, Figure 7, shows the trigger disconnector enlarged four times and in its normal upright position. The shaded area represents the new shape of the upper portion of the disconnector that you must add. This new bit of metal will increase the top contact area of the part by 50 percent (from 3/64" to 3/32"), thus, allowing the trigger to remain in contact with the rest of the assembly while it is pulled. When sizing up your key to begin filing, be sure to allow extra space for this new area.

Once you have determined where on your key you are going to shape the new part, use your original trigger disconnector as a stencil. Trace out a rough shape and mark the center of the hole to be drilled. You need not be too exact at this point, because the lines you have made are only guides to the general shape of your new part. Be sure to include lines for the new shape of your part as per the illustration.

Drill the 5/64" hole first. Use a drill press or the aforementioned method to make a clean, straight hole. With the hole in place, file out the rough shape of the new part. Remember that the new part will be larger at the top than the original, so be careful not to get carried away with the file.



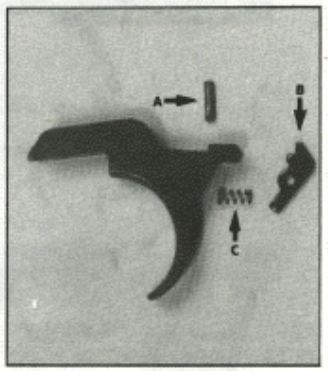
MODIFIED TRIGGER CONNECTOR
(ON BOTTOM)

A) TRIGGER DISCONNECTOR
B) TRIGGER CONNECTOR

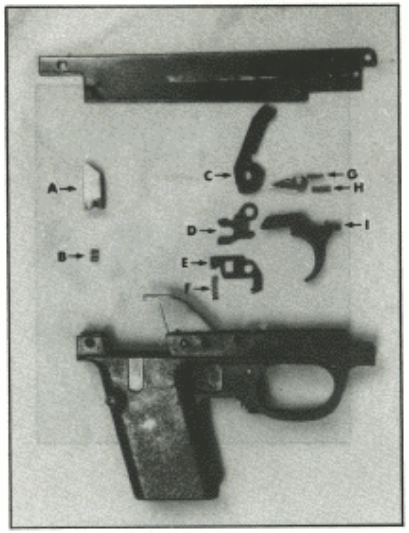
To compare your work to the original, insert the 5/64" drill bit into the holes of both parts. This will allow for more accurate comparisons when trying to hold both pieces together. This technique is also how the finishing touches must be done to your rough piece.

For the fine work, I suggest using a hand file instead of a grinder. You don't want to chew up your original part or mess up your new one for that matter. Hold the parts together using your drill bit as a guide, and carefully file away the excess bits of key until you have a disconnector with a top contact area that is 3/32" long. This is your new "Trigger Connector". If you place your original disconnector over your new "connector", it should look much like the illustration (only smaller, of course).

Check the fit of your new part into the back of the trigger. It should be positioned in the same way as the original part was. It should fit snugly into the slot with little or no pivoting action. If it won't go in far enough to insert the pin, remove and file a tiny bit of the new area away. This should do the trick. If all is well, the pin and spring will fit just as before into the trigger. If everything fits and goes together properly, we can begin to reassemble the gun!



DISASSEMBLED TRIGGER
A) TRIGGER DISCONNECTOR PIN
B) TRIGGER DISCONNECTOR
C) TRIGGER DISCONNECTOR SPRING



TRIGGER ASSEMBLY PARTS

A) FEED RAMP
B) FEED RAMP SPRING
C) HAMMER
D) MAGAZINE DISCONNECTOR TRIGGER BLOCK
E) TRIGGER BLOCK
F) TRIGGER BLOCK SPRING
G) SEAR
H) SEAR SPRING
I) TRIGGER

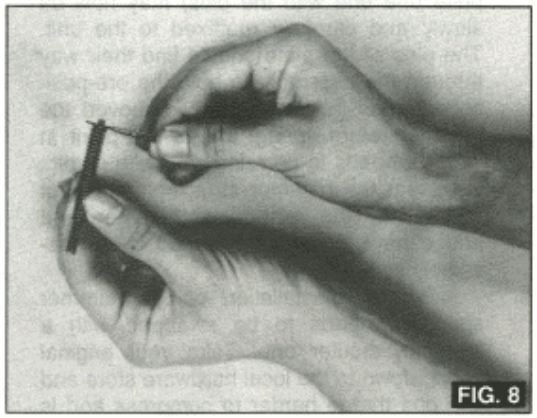
REASSEMBLY

This is the toughest step in the whole process. Reassembly of the gun requires that you remember where everything came from. Once you have installed the new part into the trigger, the nine major parts of the trigger assembly need to be replaced as they were removed. All of the springs that came out have slots that they fit into, and all of the component parts have holes that line up with their respective pins.

Position all of the parts into the body of the trigger assembly. The right-hand side plate (the one with the pins) may now be slowly and carefully reaffixed to the unit. The pins of the plate should find their way through the assembly to hold the pre-positioned parts in place. If you removed the hammer return spring, this is the point at which it needs to be reinserted with its pin. Note that the hammer strut, hammer strut spring, and the rectangular hammer strut bridge have not been returned to the assembly at this time.

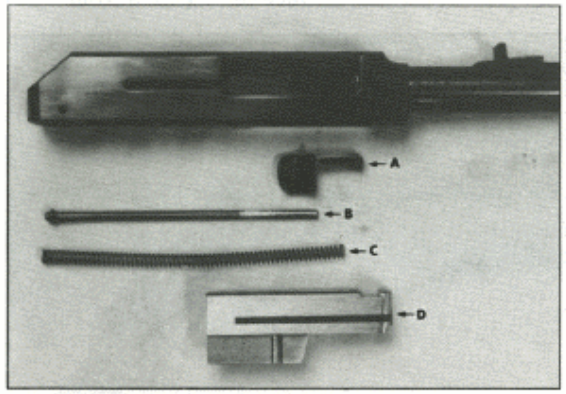
Before reinstallation of the hammer spring, it needs to be swapped with a stronger, stouter one. Take your original spring down to the local hardware store and find one that is harder to compress and is not too much longer than the original. You should have no problem finding the one you're looking for.

In order to avoid a battle with your hammer spring, which you will undoubtedly loose, here is a little trick to reassembly that you will find most helpful. You will notice that the hammer strut has a small hole towards its rear-most end. Compress your new spring onto the strut in much the same way as it appears when fully installed into the gun. When compressing the spring (which may take two people, or one creative one) be sure to compress it past the little hole in the strut. When this point is reached, place a pin or small screwdriver into the hole. This will act as a stopper so that the spring will not fly off the strut, Figure 8.



HAND POSITION
"PINNING" HAMMER STRUT SPRING
ONTO HAMMER STRUT

With the hammer spring in position on the strut, we are now ready to put it back into the gun. First, move the hammer to its full forward (or upright) position. The slot at the front end of this strut fits into the slot near the bottom of the hammer. If this is done, then the rectangular bridge can be affixed into its place at the rear of the unit. Be sure that the rear end of the strut is inserted into the slot of the bridge. With this, the left side plate may be returned to its place on the assembly. The little nubs of the bridge should fit into holes of both sides plates in order to be secure.



LAY-OUT OF RECEIVER PARTS
A) COCKING LEVER
B) RECOIL SPRING ROD
C) RECOIL SPRING
D) BOLT

At this time, the "E"-clip is to be reaffixed onto the largest pin projection on the left side of the unit. If all is secure, the screwdriver, or pin, may be removed from the positioned strut. The spring will snap to its position, resting against the bridge as it did in the original assembly. You now have a completed reassembly of the trigger assembly. However, we are not completely through with the modifications.

Pull the cocking lever back an inch, or so, to allow your finger to be inserted in front of the bolt. Use this finger to lift the bolt from its place in the receiver, Figure 9. With

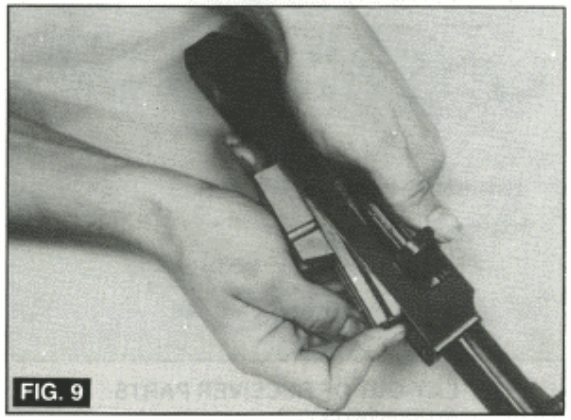


FIG. 9

HAND POSITION
REMOVAL OF BOLT FROM RECEIVER

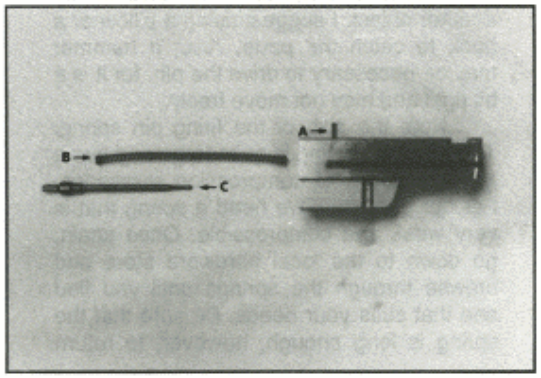
this action, the cocking lever will come free from the assembly and the bolt may be removed. The recoil spring and the recoil spring rod will also come out with the bolt. Remember where these pieces go. This is a lot easier than the trigger assembly.

Locate the rear-most pin of the three that run through the bolt. This is called the "Firing Pin Assembly Pin", and holds the Firing Pin in place. Using some type of tapping tool (small screwdriver, thin metal rod, metal punch, etc.), drive this pin up from the bottom of the bolt. With this, the firing pin will spring from the rear of the bolt. Be careful not to loose the pin and spring, as it will shoot quite a distance if not blocked by another object. I suggest using a pillow or a book to catch the parts. Also, a hammer may be necessary to drive the pin, for it is a bit tight and may not move freely.

Note the size of the firing pin spring. The firing pin spring is quite large and has a good measure of compression resistance. For our purposes, we need a spring that is very weak and compressible. Once again, go down to the local hardware store and browse through the springs until you find one that suits your needs. Be sure that the spring is long enough, however, to return

the firing pin after it has been struck by the hammer. To test this, simply push the firing pin forward into the bolt and see if it springs back with the new spring in use.

Reassemble the bolt just as it was taken apart. You may wish to use a rubber band to hold the firing pin and spring in place while you drive the holding pin back into the bolt. After you have reconstructed the bolt with the new spring, return the bolt to its place within the receiver. Be sure to return the recoil spring and its rod to their position within the receiver, as well. Don't forget to install the cocking lever. It just snaps onto the top of the bolt through the ejection port on the side of the receiver.



LAY-OUT OF BOLT PARTS
A) FIRING PIN ASSEMBLY PIN
B) FIRING PIN SPRING
C) FIRING PIN

The rest of the reassembly is dictated in the Model 9 Owner's Manual. Locate the "Feed Ramp", which is the silver projection at the front of the trigger assembly that is located just forward of the magazine box. This ramp will fold back towards the rear of the unit. It must be in the folded position for reassembly of the gun.

With the receiver laying upside-down (with the bolt exposed), position the bolt stop into its place on the receiver. There will be a slot and a spring, located beside the breech, which denote the position of the bolt stop. When this is done, position the trigger assembly atop the receiver and insert the take-down pins. Remember, the pins must be inserted from the side of the receiver with the serial number. This will complete the reconstruction of the barreled action. This unit simply drops down into the stock and is fastened by the two take-down screws. You now have a full-time, full-auto submachine gun! Before you start shooting, please read the rest of this publication for helpful troubleshooting advice and field-testing hints.

REMEMBER!!! Before you attempt to fire, pull back the cocking lever and insert a finger into the receiver to return the feed ramp to its normal, upright position.

TESTING

You may have followed the instructions for conversion to their fullest extent, and still have problems getting your gun to fire full auto. Provided that you have fabricated the trigger disconnector (or "connector") properly, most problems are very simple to remedy. The most common problems with this conversion are:

1) round does not chamber properly ("jams")

2) round chambers but does not fire ("misfires")

3) front sights become misaligned

The first one on the list, jamming shells, is not a problem derived from modification. The problem is derived from crappy ammunition and is more noticeable during full-auto operation. The ammunition that causes jamming is the aluminum alloy casings, or any standard brass cartridge with a collar or crimp. The trouble with aluminum is that the shell casing tends to shatter into shrapnel when fired. This chokes up the feed mechanism and jams the gun. The collared brass ammunition is too weak to hold up against the heavy action of the Model 9. The crimp in the brass produces a weak spot in the shell that folds up onto itself as it is shoved into the breech. This, also, jams the gun.

To remedy the jamming problem, avoid aluminum casings on cartridges. Also, avoid any brass cartridge that has a crimp or collar in its construction. Stick with good, solid ammo that has a smooth, brass shell. Also, keep your gun WELL oiled. The high firing rate of this gun will dry out the action quickly. Be sure the feed ramp is clean and oiled. You may wish to lightly oil your ammunition before loading it into the magazine. This will keep the feed lubricated while firing.

The next problem is the misfire. This happens when the hammer does not hit the firing pin hard enough to detonate the primer of the shell. The reason for this is that the hammer "catches up" with the bolt and meets resistance on its way to the firing pin. This holds the hammer back and causes its movement to slow. When this happens, the shell will be in the chamber, the bolt will be forward, but the hammer will be resting against the back of the bolt. To cock the hammer, pull the cocking lever back and release. With this the gun should begin to fire again.

To remedy this problem, install a heavier hammer spring or a weaker firing pin spring. The heavier hammer spring will allow the hammer to hit harder, regardless of its position relative to the bolt. The lighter firing pin spring allows the inertia of the pin

to propel itself forward towards the primer of the shell. This makes for easier operation of the hammer against the pin. Keeping the firing pin lubricated also helps with this problem. The ultimate solution is to use a very high-grain ammunition. Using a 147g Remington round seems to work very well. The more energy released during recoil, the more energy that will be contained in the firing pin on its return. Rounds of 115g or 124g just don't make it!

The last problem, of front sight misalignment, is caused by the intense vibrations produced by full-auto firing. The vibrations tend to unscrew the tiny screws that hold down the front sight. Before this happens, unscrew your front sight and reinstall it using some type of thread locking substance. If you're using a scope, you may wish to lock down the hold down screws in much the same manner.

Once you have made all the minor adjustments, and have found the ammunition that works for you, your Model 9 is ready to go. You will find that it will empty a standard 15 rnd. magazine in just under a second. This is pretty good for any gun, however, you may wish to purchase a 30 rnd. magazine so as to enjoy controlled bursts. The Model 9 takes any standard Smith and Wesson magazine, as well as some specially manufactured ones.